

The Use of Scientific Micrographs in Science Education: Connecting Science, Learning, and Art in Cell Biology Education (Poster)

Radka Závodská

University of South Bohemia in České Budějovice, České Budějovice, Czechia

e-mail: radkaz@pf.jcu.cz

Scientific micrographs provide unique insights into the organization of living organisms at the level of tissues, cells, and intracellular structures. Beyond their scientific importance, micrographs represent valuable educational tools with considerable potential for biology teaching. Microscopic visualization of cellular structures and technically demanding analyses of microscopic images contribute not only to an understanding of their architecture but also to the interpretation of their functions. Modern microscopes provide new insights into biological structures that have previously remained unexplored. Through carefully selected micrographs, students can develop more accurate visual perceptions of biological structures and processes that are otherwise difficult to imagine. A well-prepared micrograph is not only scientifically informative but also aesthetically compelling. Its visual qualities engage both the cognitive and emotional dimensions of learning. By combining sensory perception with verbal description and thinking about the nature of the observed phenomenon, students gradually acquire professional terms and knowledge.

Considering these didactic aspects, our new secondary school textbook “Cell Biology. Bacteria. Protozoa. Viruses”, which is being prepared for publication by Scientia Publishing House this year, contains scientific micrographs acquired during research projects conducted at the Laboratory of Histology and Microscopy, Institute of Entomology, Biology Centre of the Czech Academy of Sciences. In this paper, we demonstrate how selected examples of scientific micrographs can be used in cell biology teaching to support understanding of cellular architecture and organelle ultrastructure. The aesthetic aspect of scientific microphotography helps to cultivate students’ artistic taste and to lead them to perceive the beauty of the microworld and thus the beauty of all of nature. When we can look inside a cell through a microscope, we discover a beautiful and diverse landscape that inspires us to explore it further and uncover previously hidden secrets.

